

We claim:

1. A metal oxide-containing dispersion comprising from about 10-50% by weight of a surfactant, from about 5-35% by weight of a metal oxide, and from about 50-90% by weight of a carrier, said metal oxide particles remaining suspended in said dispersion for at least about one month.

2. The dispersion of claim 1, said surfactant being selected from the group consisting of saturated and unsaturated fatty acids, aliphatic and aromatic sulfonic acids, and combinations thereof.

3. The dispersion of claim 2, said surfactant being selected from the group consisting of oleic acid, dodecylbenzene sulfonic acid, and combinations thereof.

4. The dispersion of claim 1, said metal oxide being selected from the group consisting of MgO, CaO, TiO₂, Fe₂O₃, SrO, BaO, and combinations thereof.

5. The dispersion of claim 4, said metal oxide being MgO.

6. A method of preparing a stable, metal oxide dispersion comprising the steps of:

providing a slurry comprising from about 0.1-50% by weight of metal oxide particles and a quantity of a carrier;

pulverizing said metal oxide particles dispersed in said slurry; and

mixing said slurry with a quantity of surfactant thereby forming said dispersion,

said mixing step being for a sufficient time to contact said metal oxide particles with said surfactant and to suspend said metal oxide particles in said dispersion.

7. The method of claim 6, said process further comprising the step of adding an additional quantity of said carrier to said slurry prior to said surfactant addition step.

8. The method of claim 6, said metal oxide particles being selected from the group consisting of particles of MgO, CaO, TiO₂, Fe₂O₃, SrO, BaO, and combinations thereof.

9. The method of claim 8, said metal oxide particles being MgO particles.

10. The method of claim 6, said surfactant being selected from the group consisting of saturated and unsaturated fatty acids, aliphatic and aromatic sulfonic acids, and combinations thereof.

11. The method of claim 10, said surfactant being selected from the group consisting of oleic acid, dodecylbenzene sulfonic acid, and combinations thereof.

12. The method of claim 6, said pulverizing step comprising passing said slurry through a mill.

13. The method of claim 6, said dispersion comprising from about 50-90% by weight of said carrier, from about 5-35% by weight of said metal oxide, and from about 10-50% by weight of said surfactant.

14. The method of claim 6, said metal oxide particles remaining suspended in said dispersion for at least about one month.

15. A method of preparing a stable, liquid metal oxide dispersion comprising the steps of:

providing a quantity of metal oxide particles, said metal oxide particles having an average crystallite size of less than about 20 nm and a per unit weight surface area of at least about 75 m²/g;

mixing said particles with respective quantities of a surfactant and a carrier for a sufficient time so that the metal oxide particles remain suspended in said dispersion for at least about one month.

16. The method of claim 15, said method further comprising the step of pulverizing said metal oxide particles prior to said mixing step.

17. The method of claim 16, said pulverizing step comprising passing said
5 metal oxide particles through a mill.

18. The method of claim 15, said metal oxide particles being selected from the group consisting of particles of MgO, CaO, TiO₂, Fe₂O₃, SrO, BaO, and combinations thereof.

19. The method of claim 18, said metal oxide particles being MgO particles.

20. The method of claim 15, said surfactant being selected from the group consisting of saturated and unsaturated fatty acids, aliphatic and aromatic sulfonic acids, and
15 combinations thereof.

21. The method of claim 20, said surfactant being selected from the group consisting of oleic acid, dodecylbenzene sulfonic acid, and combinations thereof.

22. A hydrocarbon fuel comprising a quantity of the dispersion of claim 1.

23. The fuel of claim 22, said fuel being selected from the group consisting of gasoline, diesel, and kerosene fuels.